INT252:WEB APP DEVELOPMENT WITH REACTJS

L:2 T:0 P:2   Credits:3

Course Outcomes: Through this course students should be able to

CO1 :: understand advanced JavaScript concepts

CO2 :: develop JSX components and use props in React app

CO3 :: compose and manipulate states and should develop an understanding of events & Hooks

CO4 :: use forms with state and validating the form for errors and display errors

CO5 :: make a react app by using HTTP methods and routing the pages

CO6 :: validate or debug the react app and deploy app onto the server

Unit I

Refreshing JavaScript : ES6 Refresher- Classes, Arrow Functions, Variables (let, const, var), Array Methods like .map(), Destructuring, Spread Operator, Modules

Introduction to SPA, MPA and React framework : Best practices of front-end development, Understanding Single Page Applications and Multi Page Applications (Real-World SPAs & React Web Apps, Introduction to React framework, Features of React, Advantages and Disadvantages of React

Unit II

ReactJS installation : Installing React using Create React App, React Environment , Folder Structure, JSX, Understanding Component Basics, JSX introduction, createElement() argumets, JSX vs React.createElement() method, JSX expressions, Rendering Elements into DOM

Components and styles in React : Creating components, Class components and Function components Functional Components, React Virtual DOM, Props, CSS in React - Inline styling, CSS stylesheets, CSS Modules, Adding Bootstrap

Unit III

Understanding Hooks : Hooks basics, Built-in hooks, useState, useEffect, useContext, useRef, useReducer, useCallback, useMemo, custom hooks

Events, States and component lifecycle in React : Event handling in React, Stateless and Stateful Components, Creating State, Common pitfalls of state management, Component Lifecycle

Unit IV

Working with Forms : Adding forms, Handling forms, Submitting forms, controlled and uncontrolled components, Forms validation - error checking and displaying errors

Unit V

HTTP Methods : Fetch() and Axios, GET Requests, POST Requests, PUT Request and DELETE Action

Routing : Setting up routing and routes, Navigating to pages, Navigating back and next page, Passing data via Query Params, Passing data between pages, Fetching data

Unit VI

Redux : Redux basics, App starting Point for Redux, Understanding the Redux flow, Store and Reducer, Connecting Components, Dispatching actions

Debugging and Deployment : Debugging the React App, Building the app, Best practices for its build & deployment process

List of Practicals / Experiments:

List of Practicals

- Demonstrate let, var and const in JavaScript with an example

- Demonstrate classes, arrow Functions, map() in JavaScript

- Demonstrate Destructuring, Spread Operator, Modules

- Demonstrate The difference between JSX and React.createElement() method in ReactJS

- Implement class components in ReactJS

- Implement function components in ReactJS

- Demonstrate States in ReactJS
- Demonstrate styling in ReactJS inline, stylesheets, CSS modules, Bootstrap
- Demonstrate hooks in ReactJS.
- Implement event handling in ReactJS
- Implement a form with Redux
- Create a React app with routes
- Create a React app that fetches data from a public API
- Implement props in ReactJS

Text Books:
    1. ADVANCED WEB DEVELOPMENT WITH REACT by MEHUL MOHAN, BPB PUBLICATIONS

References:
    1. REACT: THE COMPREHENSIVE GUIDE by SEBASTIAN SPRINGER, SHROFF/O'REILLY